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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,322	06/24/2008	Pekka Savolainen	502.1275USN	2655
33369 7590 12/15/2011 FASTH LAW OFFICES (ROLF FASTH) 26 PINECREST PLAZA, SUITE 2 SOUTHERN PINES, NC 28387-4301			EXAMINER WU, JINGGE	
			ART UNIT 2624	PAPER NUMBER
			NOTIFICATION DATE 12/15/2011	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/598,322

Applicant(s)

SAVOLAINEN ET AL.

Examiner

JINGGE WU

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 1-25 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☐ Claim(s) 1-25 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-302)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claim 25 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. This is a computer program per se claim. Computer program can be statutory only if the program is stored in a non-transitory computer readable medium.

### ***Claim Rejections – 35 USC 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-15, and 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Hyypa et al. (US Application 2004/0236535 A1, hereafter Hyypa).

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As to claim 1, Hyypa discloses that a method for determination of stand attributes by means of a laser scanner and images, in which a point cloud with three-dimensional information about the target points and describing the stand is produced by means of a laser scanner (abstract [0025]), comprising:

a) overlapping images are produced by aerial or terrestrial photography 9[0026]-[0027], [0033]),

b) a denser point cloud with more target points with three-dimensional information is produced by densifying the point cloud produced by the laser scanner with information from the overlapping images produced by the aerial or terrestrial photography ([0036]; and

c) determining the stand attributes (mean, crown) by means of the densified point cloud (0036)-[0037]).

As to claim 2, Hyypa further discloses that the method according to claim 1 wherein after step a), the point cloud produced by laser scanning and the image information are combined, to belong to the same target ( the tree [0036]-[0037]).

As to claim 3, Hyypa further discloses that the method according to claim 1 wherein the three-dimensional information of the point cloud produced by means of a laser scanner is formed of three- dimensional coordinates for the target points ([0036]).

As to claim 4, Hyypa further discloses that the method according to claim 1 wherein for step c), the points measured from the surface of the terrain and the points measured above the surface of the *terrain* are distinguished

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from the point cloud produced by laser scanning, and three-dimensional points are added close to those points that are produced by a laser scanner and that correspond to points measured above the surface of the terrain ([0036]-[0038]), note that surface of terrain may be the road surface).

As to claim 5, Hyypa further discloses that the method according to claim 1 wherein in order to determine three-dimensional coordinated for the target points the data achieved from the laser measurements and the image information of the aerial photography are calculated into the same coordination system ([0029]-[0030])0.

As to claim 6, Hyypa further discloses that the method according claim 1 wherein in step b), the three-dimensional target coordinates of the additional points are determined from the overlapping images produced by aerial photography by means of photogrammetric methods ([0036]).

As to claim 7, Hyypa further discloses that the method according to claim 1 wherein the step c) is performed by means of a pattern recognition method, by determination of models describing the crowns of the stand and the terrain, or by means of coordinate information ([0030]-[0039]).

As to claim 8, Hyypa further discloses that the method according to claim 1 wherein such a number of target points is applied that individual trees and groups of trees are discriminated ([0032]-[0037]).

As to claim 9, Hyypa further discloses that the method according to claim 1 wherein in step a), brightness values are produced for the points in addition

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to the three-dimensional coordinates by means of a camera or spectrometry ([0023]).

As to claim 10, Hyypa further discloses that the method according to claim 1, wherein the laser scanner material used for the creation of a denser point cloud has several, pulses modes or profile data ([0023]-[0024]).

As to claim 11, Hyypa further discloses that the method according to claim 1, wherein a three-dimensional presentation of the stand height is achieved by calculating, from the denser point cloud, the difference between a crown model corresponding to the upper parts (crown) of the stand and a digital terrain model corresponding to the surface (road) of the terrain ([0032]-[0038]).

As to claim 12, Hyypa further discloses that the method according to claim 1, wherein an anisotropy correction for the brightness *values of* an image is done *for* individual trees or groups of trees by means of the denser point cloud by using a crown mode] created by means of the denser point cloud ([0028]-[0037]).

As to claim 13, Hyypa further discloses that the method according to claim 1, wherein a change in the stand can be calculated by means of denser point clouds or by means of surface models corresponding to them achieved at two different *time* points, the change consisting of for instance a height or breadth growth, thinning and fallen trees ([0031]-[0037]).

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As to claim 14, Hyypa further discloses that the method according to claim 1, the identification of individual trees or groups of trees is done by using the denser point cloud, the height mode], surface models, intensity data of the laser scanning, profile data and/or brightness values of the images by means of a known pattern recognition method ([0031]-[0037]).

As to claim 15, Hyypa further discloses that the method according to claim 1, wherein the identification of individual trees or groups of trees -takes place by using images and the height for a desired tree is achieved by means of denser point cloud material ([0036]-[0037])

As to claim 24, Hyypa further discloses that the method according to claim 1, wherein the definition of stand attributes is performed by means of a computer program (Fig. 5, [0050]-[0051]).

As to claim 25 (considering the Applicant rewrites the claims directed to non-transitory computer readable medium), the elements are addressed with respect to claim 1.

### ***Claim Rejections - 35 USC § 1035***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the

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prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hyyppa in view of Rouseelle et al. (US 7,212,670 B1, hereafter Rouseelle).

As to claim 16, Hyyppa does not explicitly mention tree inventory. old inventory *information*, earlier images and/or laser materials is used for evaluation or updating of stand attributes.

Rouseelle, in an analogous environment, discloses storing the inventory information, and images for evaluating stand attributes<sup>222</sup> (col. 5, ll. 23-67).

The knowledge that using stored forest inventory information and images for evaluating attributes such as species is a desirable way to subject that would have been within the skill in the art, as evidenced by Rouseelle. Therefore, combining the well-known elements of Rouseelle with the well-known technique of Hyyppa is nothing more than a "predictable use of prior art elements according to their established functions." *KSR*, 550 U.S., at 417.

As to claim 17, Rouseelle further discloses the method according to claim 1 wherein, the tree geometry and/or the delineation of the tree is determined by means of sample points achieved inside the area restricted by the tree either



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two-dimensionally , or three-dimensionally in order to identify the tree species or for modeling of the stand (col. 5, ll. 23-67).

As to claim 18, Rouselle further discloses that the method according to claim 1, wherein the attributes of individual trees or groups of trees, which are achieved by analyzing the canopy height model, are the location of the trees, age, height, crown diameter, crown delineation, stem diameter, quality of timber wood, tree value, basal area, crown closure percentage, development class, tree species, stem volume, and/or stem number per area unit and statistical attributes means of this information (col. 3, l. 37-col. 4, l. 29; col. 14, l. 28-col. 15, l. 11).

As to claim 19, Rouselle further discloses that the method according to claim 1, wherein the stem diameter of the tree can be derived by means of the mean diameter of the crown or the tree height and the mean diameter of the crown and by making use of rules based, on knowledge and possible for each tree species separately (col. 3, l. 37-col. 4, l. 29; col. 14, l. 28-col. 15, l. 11).

As to claim 20, Rouselle further discloses that the method according to claim 18, wherein the stem number is determined as a number of crowns determined from an image or point cloud (col. 3, l. 37-col. 4, l. 29; col. 14, l. 28-col. 15, l. 11).

As to claim 21, Rouselle further discloses that the method according to claim 1, wherein the crown coverage percentage (ratio) is defined as the relation between the area covered by the crowns and the whole surface (col. 5 ll. 43-67).

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As to claim 22, Rouselle further discloses that the method according to claim 1, wherein in addition to attributes of individual trees of groups of trees and statistical data for these, also a stem number and the crown coverage percentage of a *stand* that is seen from above, are defined for a larger tree group, and this information is used in the estimation of attributes for plots and stands (col. 3, l. 37-col. 4, l. 29; col. 14, l. 28-col. 15, l. 11).

As to claim 23, Rouselle further discloses that the stand volume is completely or partly defined by means of the mean height of the stand and the crown coverage percentage (col. 5 ll. 43-67).

### **Contact Information**

7. Any inquiry concerning this communication or earlier communications should be directed to Jingge Wu whose telephone number is (571)-272-7429. He can normally be reached Monday through Thursday from 8:00 am to 4:30 pm. The examiner can be also reached on second alternate Fridays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Bhavesh Mehta, can be reached at (571) 272-7453.

/Jingge Wu/

Primary Examiner, Art Unit 2624

TC 2600

